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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/581,130
Filing Date: May 31, 2006
Appellant(s): BOUDOU ET AL.

Jonathan P. Osha (#45,079)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/17/2008 appealing from the Office action mailed 7/9/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,154,819	Larsen et al.	11-2000
4,177,510	Appell et al.	12-1979
6,401,160	See et al.	6-2002

7,177,975 Toombs et al. 8-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC ' 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 5-7, 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen et al (US 6,154,819) in view of Appell et al (US 4,177,510).

Regarding Claim 1, Larsen teaches a method to control access to a sector of a flash type memory of an electronic module comprising:

receiving a write request to write data to an area of a partition wherein the partition is located within the sector (Larsen calls sectors as defined by applicant 'blocks', and data to be written is located within a block, see step 1002 in Figure 10 and Column 11 Lines 23-27, where the "program" command corresponds to a write request); and

making a determination about whether an owner of the data to be written has write access to the partition of the sector (the rule corresponding to whether or not the block is locked, Figure 10 step 1008, and this rule involves checking the lock bit and

signifying the 'owner' as an application allowed to erase the entire sector; in other words, if the application sees the block as unlocked the application is construed as an owner, Column 11 Lines 23-42); and

writing the data to the partition when the first determination and the second determination allow the write request to proceed (see Column 11 Lines 29-39, "if...it is determined that the memory block is not locked the program or erase operation is executed and the new data is written to the flash memory block").

However, Larsen does not explicitly teach making a determination about whether the owner has permission to erase the entire sector in which the partition is located using a rule, where the rule verifies that the write request does not delete data of an owner other than the owner issuing the write request. Appell et al (US 4,177,510) teaches segregating a memory such that memory can only be written if it belongs to that particular process ("hardware checks determine that the address used by a process is part of the address space assigned to the process, and if the address is outside the level of privilege assigned, then access to addressed information is denied", Column 6 Lines 61-68 in Appell).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to which the subject matter pertains to have implemented the process protection scheme of Appell in the device of Larsen to verify that the owner has permission to erase the entire block in which the partition is located (where the process in Appell is equivalent to an application in Larsen). Also, since each application would have its own address space outside of which it is not allowed to access memory,

including Appell's protection scheme will ensure that a write request does not delete data of an owner (application) other than that of the owner that issued the request.

Combining the devices would be beneficial because adding Appell's protection helps "to protect information in segments shared by several processes from misuse" (abstract of Appell). Thus, by combining the devices, the additional benefit of a more protected system is obtained.

Regarding Claim 3, Larsen and Appell teach all limitations of Claim 1, wherein the owner is granted permission to erase the entire sector if at least one of the following conditions is satisfied: the entire sector belongs to the owner (since an owner sees the block as unlocked, the entire sector belongs to the same owner if the block's lock bit is not set, see Column 11 Lines 23-42), remaining partitions in the sector not belonging to the owner are blank, and the remaining partitions in the sector not belonging to the owner are marked as erasable.

Regarding Claim 5, Larsen teaches an electronic system comprising:

a FLASH type non-volatile memory comprising a sector, wherein the sector comprises a partition (Larsen calls sectors as defined by applicant 'blocks' and each bit of data within this block may qualify as a partition, see description by Larsen of flash memory's block-erase architecture on Column 1 Lines 44-49);

a set of rules (Larsen's rule involves checking the lock bit, thus the 'owner' is an application allowed to erase the entire sector; in other words, if the application sees the block as unlocked it is an owner, see Column 11 Lines 23-42), a memory manager, operatively connected to the FLASH type non-volatile memory (a memory manager is

inherently present to execute polling and comparison steps 1006 and 1008 in Figure 10) configured to:

receive a write request to write data to an area of the partition (step 1002 in Figure 10 and Column 11 Lines 23-26);

determine whether the owner of the data to be written has write access to the partition of the sector and permission to erase the entire sector using the set of rules (see Column 11 Lines 29-39, where permission is checked prior to writing the data), and

write the data to the partition when the determination allows the write request to proceed (see Column 11 Lines 29-39, "if...it is determined that the memory block is not locked the program or erase operation is executed and the new data is written to the flash memory block").

However, Larsen does not explicitly teach making a determination about whether the owner has permission to erase the entire sector in which the partition is located using a rule, where the rule verifies that the write request does not delete data of an owner other than the owner issuing the write request. Appell et al (US 4,177,510) teaches segregating a memory such that memory can only be written if it belongs to that particular process ("hardware checks determine that the address used by a process is part of the address space assigned to the process, and if the address is outside the level of privilege assigned, then access to addressed information is denied", Column 6 Lines 61-68 in Appell).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to which the subject matter pertains to have implemented the

process protection scheme of Appell in the device of Larsen to verify that the owner has permission to erase the entire block in which the partition is located (where the process in Appell is equivalent to an application in Larsen). Also, since each application would have its own address space outside of which it is not allowed to access memory, including Appell's protection scheme will ensure that a write request does not delete data of an owner (application) other than that of the owner that issued the request.

Combining the devices would be beneficial because adding Appell's protection helps "to protect information in segments shared by several processes from misuse" (abstract of Appell). Thus, by combining the devices, the additional benefit of a more protected system is obtained.

Regarding Claim 6, Larsen teaches all limitations of Claim 5, wherein the memory module intercepts all write requests to the FLASH type non-volatile memory (see steps 1004 and 1008 in Figure 10, where all write requests must go through the memory manager present to execute polling and comparison steps 1006 and 1008).

Regarding Claim 7, Larsen teaches all limitations of Claim 5, wherein the memory manager is configured to access a description of the partition, wherein the description comprises the status of the partition (the partition is described by the locked bit; either the partition is locked or not locked as indicated in step 1008 of Figure 10).

Claim 9 is an electronic assembly including a computer program comprising program code instructions to execute the steps of the method according to Claim 1, and so is rejected on the same grounds as Claim 1.

Regarding Claim 10, Larsen teaches all limitations of Claim 5, with the further limitation exactly as described in Claim 3, and thus is rejected on the same grounds as Claim 3.

Claim 12 is the computer program of Claim 9 with the further limitation exactly as described in Claim 3, and thus is rejected on the same grounds as Claim 3.

Claims 4,11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen and Appell in view of See et al (US 6,401,160).

Regarding Claim 4, Larsen and Appell teach all limitations of Claim 1 as discussed above. However, Larsen teaches only two modes and applies these modes to the blocks exclusively (erasable or not blank, depending on the state of the block's lock bit). See teaches object headers describing each partition of each memory block that specifies the state of the corresponding object within each block, including an 'empty' status (see Status Table 320 and description of memory structure on Column 3 Lines 47-57 in See). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to which the subject matter pertains to have differentiated partitions within each block and assign them a status as described by See because it would allow for a more liberal lock mechanism, as would have been obvious to one of ordinary skill in the art. For example, if the memory device lists a block as 'locked' as described by Larsen but all blocks within the partition are labeled 'empty', the writing application could still use these blocks due to the extra state. This situation may

occur if an application overestimates the amount of memory blocks it needs and thus locks blocks that it does not need.

Regarding Claim 11, Larsen teaches all limitations of Claim 7, and since the only further limitation is the same as that of Claim 4, Claim 11 is rejected on the same grounds as Claim 4.

Regarding Claim 13, Larsen teaches all limitations of Claim 9, and since the only further limitation is the same as that of Claim 4, Claim 13 is rejected on the same grounds as Claim 4.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen and Appell in view of Toombs (US 7,177,975).

Regarding Claim 8, Larsen teaches all limitations of Claim 5, but does no teach these limitations on a card. However, Toombs teaches a card that contains a write protection system (Column 1 Lines 48-50 and Column 1 Lines 62-64 in Toombs). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to which the subject matter pertains to have implemented the write protection device described by Larsen on the card described by Toombs, since putting the device on a card makes the system of claim 5 more mobile, which is more convenient for a user, as would have been obvious to one of ordinary skill in the art.

(10) Response to Argument

35 USC 103(a) Rejection of Claims 1-3, 5-7, 9, 10 and 12 as being unpatentable over Larsen in view of Appell

At page 8 of the Appeal Brief filed 12/17/2008, Appellant argues:

"In contrast, the second determination step, as recited by independent claim 1, verifies access to an address space by an owner as a function of whether one or more other address spaces within the same sector are associated with that owner."

The examiner respectfully disagrees. The rule is a determination about whether the owner has permission to erase the entire sector in which the partition is located using a rule. Appell teaches such a determination when "hardware checks determine that the address used by a process is part of the address space assigned to the process". Thus, Appell verifies access to an address space by an owner. The language of verifying an address space by an owner as a function of whether one or more other address spaces within the same sector are associated with that owner is not in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Explicitly, claim 1 states that "the rule verifies that the write request does not delete data of an owner other than the owner issuing the write request". Appell teaches that "a process cannot refer to data within the address space of another process", Column 9 Lines 55-57, thus the owner is the process accessing the address space, and thus the owner has permission to erase the entire address space and can not delete the data of another owner.

At pages 9-10 of the Appeal Brief filed 12/17/2008, Appellant argues:

"*In contrast, Appell's process protection scheme only verifies the owner of the write request against the ownership of the partition being written to. Accordingly, the owner of the write request is not verified against the ownership of any other partitions written to.*"

The examiner respectfully disagrees.

The language of verifying against the ownership of any other partitions is not explicitly in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Explicitly, claim 1 states that "the rule verifies that the write request does not delete data of an owner other than the owner issuing the write request". Appell teaches that "a process cannot refer to data within the address space of another process", Column 9 Lines 55-57, thus the owner is the process accessing the address space, and thus the owner has permission to erase the entire address space and can not delete the data of another owner.

35 USC 103(a) Rejection of Claim 4, 11, and 13 as unpatentable over Larsen and Appell in view of See

At pages 10-11 of the Appeal Brief filed 12/17/2008, Appellant argues the patentability of claims 4, 11, and 13 as not teaching the second determination step as recited in claim 1. The Examiner has addressed this argument above.

35 USC 103(a) Rejection of Claim 8 as unpatentable over Larsen and Appell in view of Toombs

At page 11 of the Appeal Brief filed 12/17/2008, Appellant argues the patentability of claims 8 as not teaching the second determination step as recited in claim 1. The Examiner has addressed this argument above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Mark Anthony Giardino/

Conferees:

/Sanjiv Shah/
Supervisory Patent Examiner, Art Unit 2185

/Kevin L Ellis/
Acting SPE of Art Unit 2187